HP StorageWorks
Fabric OS 4.4.0f release notes

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Fabric OS 4.4.0f release notes

About this document

This section identifies the audience of these Release Notes and provides a high-level description of the information it contains.

Release Notes overview

These Release Notes cover the following major topics:

- Fabric OS 4.4.0f enhancements, page 4
- Accessing documentation, page 6
- Standards compliance, page 6
- Important notes, page 8
- Closed issues from Fabric OS 4.4.0c, page 38
- Closed issues from Fabric OS 4.4.0d, page 41
- Closed issues from Fabric OS 4.4.0e, page 45
- Closed issues from Fabric OS 4.4.0f, page 48

Audience

These Release Notes are intended for systems administrators and technicians who are responsible for installing, operating, and maintaining Fabric OS version 4.4.0f.

Accessing future product updates

HP strongly recommends that customers sign up online using the Subscriber's choice web site: http://www.hp.com/go/e-updates.

- Subscribing to this service provides you with e-mail updates on the latest product enhancements, newest versions of drivers, and firmware documentation updates as well as instant access to numerous other product resources.
- After signing up, you can quickly locate your products by selecting **Business support** and then **Storage** under Product Category.

Fabric OS 4.4.0f is a patch release containing fixes to a number of defects. This patch release also includes the same feature set as the Fabric OS 4.4.0 release.

HP upgrade recommendations

HP strongly urges customers to take the following actions:

- Upgrade Fabric OS 4.1.x or 4.2.x systems to Fabric OS 4.4.0f directly. Do not upgrade those systems to Fabric OS 4.4.0, Fabric OS 4.4.0e or any firmware version in between.
- Upgrade existing switches running Fabric OS 4.4.0 or Fabric OS 4.4.0a to Fabric OS 4.4.0f as soon as possible.

Fabric OS 4.4.0f enhancements

Fabric OS 4.4.0f is a patch release that includes fixes to several defects found since the release of Fabric OS version 4.4.0c. Fabric OS 4.4.0f integrates the same features as Fabric OS 4.4.0, including significant enhancements in the areas of Fibre Channel long-distance support, scalability and manageability.

Major new features of Fabric OS 4.4.x include:

- Support for the HP StorageWorks SAN Switch 4/32 and the HP StorageWorks Multi-protocol (MP) Router
- Greater than two-fold increase in HP Extended Fabric support:
  - SAN Switch 2/8V, SAN Switch 2/16V, and SAN Director 2/128 support distances up to 200 km at 1 Gbit/sec and 100 km at 2 Gbit/sec.
  - SAN Switch 4/32 supports distances up to 500 km at 1 Gbit/sec and 100 km at 4 Gbit/sec.
- Trunking over Extended Fabrics
  - The HP StorageWorks 2 GB switches, Core Switch 2/64,and SAN Director 2/128 switch, support two links up to 50 km at 2 Gbit/sec and four links of 10 km at 2 Gbit/sec.
  - The SAN Switch 4/32 supports three links of up to 250 km at 2 Gbit/sec or 100 km at 4 Gbit/sec.
- Increased scalability to 2560 ports and 50 domains
- Ports on Demand (POD) for instant scalability via license keys
- Fabric Watch improvements:
  - Improved notification
  - Switch health reports
  - Standardized messaging: for example, including information such as time stamp, message number, severity, and switch name for all system messages
  - Updated security enhancements:
    - SSH
    - RADIUS
    - DH-CHAP authentication
  - Fabric Watch and Web Tools usability enhancements

HP Software release policy is to carry forward all fixes in patches to subsequent maintenance and feature Fabric OS releases.

Supported switches

Fabric OS v4.4.0f supports the following switches:

- HP StorageWorks SAN Switch 2/8V
- HP StorageWorks SAN Switch 2/16V
- HP StorageWorks SAN Switch 2/16N
- HP StorageWorks SAN Switch 2/32
- HP StorageWorks Core Switch 2/64
- HP StorageWorks SAN Director 2/128
- HP StorageWorks SAN Switch 4/32

Technical support

Contact Hewlett-Packard support for hardware, firmware, and software support, including product repairs and part ordering. To assist your support representative and to expedite your call, have the following information available:

- Technical support contact number, if available
- Switch model
- Switch operating system version
- Error messages received
- Output from `supportshow` command
- Detailed problem description and specific questions
- Description of any troubleshooting steps already performed and results

Switch Serial Number

The serial number label location varies with switch model, as follows:

- For the SAN Switch 2/8V, SAN Switch 2/16V, SAN Switch 2/16N and SAN Switch 2/32 models, the label is on the rear chassis panel.
- For the SAN Switch 4/32, the label is on the switch ID pull-out tab located on the port side, and on the inside of the chassis, near the Power Supply 1.
- For the Core Switch 2/64 and SAN Director 2/128, the label is on the inside front of the chassis, on the wall to left of the ports.

World Wide Name (WWN)

Use the `licenseIdShow` command to display the license ID.

Accessing documentation

Additional documentation, including white papers and best practices documents, is available at the HP storage web site: http://welcome.hp.com/country/us/eng/prodserv/storage.html.

NOTE: HP has made every effort to provide you with the most up-to-date Web retrieval procedures available at time of print. Note, however, that Web page links are subject to change.

Documentation, including white papers and best practices documents, is available on the HP web site:

http://www.hp.com/country/us/eng/prodserv/storage.html

To access current Fabric OS related documents:

1. Locate the **IT storage Products** section of the web page.
2. Under **Networked Storage**, click **SAN Infrastructure**.
3. The **SAN Infrastructure** web page displays. Locate the **SAN Infrastructure products** section. Click **Fibre Channel Switches**.
4. Locate the **B-Series Fabric-Mid-Range** section.
5. To access Fabric OS 4.x documents (such as this document), click **HP StorageWorks SAN Switch 4/32 & SAN Switch 4/32 power pack**.

   The switch overview page displays.
6. Go to the **Product Information section**, located on the right side of the web page.
7. Click **Technical documents**.
8. Follow the onscreen instructions to download the applicable documents.

For information about Fibre Channel standards, visit the following web site: http://www.t11.org.

Standards compliance

HP products conform to these standards in a manner consistent with accepted engineering practices and procedures. In certain cases, HP may add proprietary supplemental functions to those specified in the standards. We verify conformance with Fibre Channel Standards by subjecting our switches to SANmark Conformance Tests developed by the Fibre Channel Industry Association. Our switches have earned the SANmark logo indicating such conformance. SANmark is a limited testing program and does not test all standards or all aspects of standards.

HP Fabric OS 4.4.0b conforms to the following Fibre Channel Standards:

- FC-AL ANSI X3.272: 1996
- FC-AL-2 NCIT S 332: 1999
- FC-FLA NCIT S TR-20: 1998
- FC-GS-2 NCIT S 348-2000 Rev 7.01
- FC-FG ANSI X3.289: 1996
- FC-PH ANSI X3.230: 1994
- FC-PH-2 ANSI X3.297: 1997
- FC-PH-3 ANSI X3.303: 1998
- FC-PLDA NCIT S TR-19: 1998
- FC-SW-2 Rev 5.3
- FC-VI Rev 1.61
- FC-MI Rev 1.92
- FC-BB Rev 4.7
- FC-FS Rev 1.7
- FC-BB-2 Rev 5.3
- IPFC RFC 2625
- FCP ANSI X3.269: 1996
- FCP-2 Rev 7

Important notes

This section provides information you should be aware of when running Fabric OS 4.4.0f.

OS requirements

HP strongly recommends using the latest software release versions to get the greatest benefit from the SAN. Refer to the following web site for information: http://www.hp.com.

Browser, OS, and Java plug-in support

Advanced Web Tools browser, operating system, and Java Plug-in support is updated for Fabric OS 4.4.0f. Table 1 identifies the supported browsers, operating systems, and Java Plug-ins for this release. Go to the http://www.hp.com web site for the latest list of supported operating systems.

Table 1 Browsers, Operating Systems, and Java Plug-ins

Operating System	Browser	Java Plug-in
HP-UX 11.00	Mozilla 1.4 or later	1.4.2_00 or later (up to but not including 1.5)
HP-UX 11.11 (PA 32-bit & PA 64-bit)	Mozilla 1.4 or later	1.4.2_00 or later (up to but not including 1.5)
HP-UX 11.23 (IA 64-Bit)	Mozilla 1.4 or later	1.4.2_00 or later (up to but not including 1.5)
HP-UX 11.i	+NN7.0	1.4.1_02
HP Tru64 UNIX® 5.1B	Mozilla 1.4	1.4.1_02
HP Tru64 UNIX 5.1A, 5.1b	Mozilla 1.4	1.4.1_02
HP OpenVMS 7.3-1 (64-bit)	Secure Web Browser (SWB 1.4)	1.4.1_02
HP OpenVMS 7.3-2 (64-bit)	Secure Web Browser (SWB 1.4)	1.4.1_02
HP Open VMS 7.3-x (Itanium)	Secure Web Browser (SWB 1.4)	1.4.1_02
AIX 5.1	Mozilla 1.4	1.4.1_01
AIX 5.2	Mozilla 1.4	1.4.1_01
AIX 5.3	Mozilla 1.4	1.4.1_01

Table 1 Browsers, Operating Systems, and Java Plug-ins (continued)

Operating System	Browser	Java Plug-in
Red Hat Linux® 7.3	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
Red Hat Linux 8.0	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
Red Hat Enterprise Linux AS 2.1 (IA32)	NN7.02	1.4.1_03
Red Hat Enterprise Linux AS 2.1 (IA32 & IA64)	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
Red Hat Enterprise Linux AS 3.0 (IA32 & IA64)	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
Red Flag Linux (32-bit)	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
United Linux 1.0	NN7.02	1.4.1_03
United Linux 1.0 SUSE 8 (IA32)	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
United Linux 1.0 SUSE 8 (IA64)	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
United Linux 2.0	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
Solaris 2.8, 2.9	Mozilla 1.2.1 (recommended) Netscape 7.0 Netscape Communicator 4.78	1.4.2 1.4.1_03
Solaris 7, 8, 9, 10	Mozilla 1.2.1 (recommended) Netscape 7.0 Netscape Communicator 4.78	1.4.2

Table 1 Browsers, Operating Systems, and Java Plug-ins (continued)

Operating System	Browser	Java Plug-in
Windows® 2000	IE 6.0 SP1	1.3.1_04 or 1.4.1_02 (recommended)
Windows 2000 SP3	IE 6.0 SP1	1.4.1_03
Windows 2003	IE 6.0 SP1	1.3.1_04 or 1.4.1_02 (recommended)
Windows XP	IE 6.0 SP1	1.4.1_03 (recommended)
Windows Server 2003 (IA32)	IE 6.0	1.4.1_03
Windows NT® 4.0 SP6a	IE 6.0 SP1	1.4.1_03

Table 2 summarizes the major features incorporated in Fabric OS 4.4.0f.

Table 2 New features in Fabric OS 4.4.x

Category	Feature
SAN Director 2/128	Mixed blade support: • Two-domain support • Mixed Core Switch 2/64 and SAN Director 2/128
SAN Switch 4/32 platform support	Ports on demand (16, 24, or 32 ports) ASIC support: • 1, 2, and 4 Gbit/sec automatic speed negotiation • 4 Gbit/sec trunks • 8-port trunk groups for up to 32 Gbit/sec trunks • More distance options (see below) • Dynamic path selection (DPS) with the exchange-based and device-based policies. The SAN Switch 4/32 uses the frame information to determine the routing paths dynamically. Port-based policy is independent of the traffic pattern. • Network boot using TFTP
Reliability	Compact flash capacity monitoring
Manageability	Advanced Performance Monitoring – ISL monitoring (CLI only) Fabric Watch enhancements Export performance data FDMI host name support

Table 2 New features in Fabric OS 4.4.x (continued)

Category	Feature
RAS	New logging and tracing infrastructure Enhanced error message format `supportShow` command enhancements New `supportSave` command
Security related	RADIUS support Multiple user accounts SSL/HTTPS support SNMPv3 support DH-CHAP authentication (switch-switch) SAN gateway security

Table 2 New features in Fabric OS 4.4.x (continued)

<table>
<tr><th>Category</th><th>Feature</th></tr>
<tr><td>Long-distance enhancements</td><td>
200 km at 1 Gbit/sec or 100 km at 2 Gbit/sec (SAN Switch 2/8V, 2/16V, and SAN Director 2/128)

500 km at 1 Gbit/sec, 250 km at 2 Gbit/sec, or 100 km at 4 Gbit/sec (SAN Switch 4/32)

Trunking over Extended Fabrics (HP StorageWorks 2 GB switches, Core Switch 2/64, and SAN Director 2/128 with version 4.4.0b) is supported only at 2 Gbit/sec as follows:
• Four links at 10 km at 2 Gbit/sec per trunk group
• Three links at 25 km at 2 Gbit/sec per trunk group
• Two links at 50 km at 2 Gbit/sec per trunk group

Buffer limited ports

Enhanced trunking support is summarized below:
<table>
<tr><th>Distance</th><th>Number of 2-Gbit/sec ports</th></tr>
<tr><td>LE 10 km</td><td>4 (one 4-port trunk)</td></tr>
<tr><td>L0.5 25 km</td><td>3 (one 3-port trunk)</td></tr>
<tr><td>L1 50 km</td><td>1 (one 2-port trunk)</td></tr>
<tr><td>L2 100 km</td><td>0</td></tr>
<tr><td>LD 200 km</td><td>0</td></tr>
<tr><td>LD 250 km</td><td>0</td></tr>
<tr><td>LD 500 km</td><td>0</td></tr>
</table>
Enhanced trunking support with the ASIC is summarized below:
<table>
<tr><th>Distance</th><th>Number of 2-Gbit/sec ports or trunks</th><th>Number of 4-Gbit/sec ports</th></tr>
<tr><td>LE 10 km</td><td>32 (four 8-port trunks)</td><td>32 (four 8-port trunks)</td></tr>
<tr><td>L0.5 25 km</td><td>32 (four 8-port trunks)</td><td>15 (one 8-port trunk)</td></tr>
<tr><td>L1 50 km</td><td>15 (one 8-port trunk)</td><td>7 (one 7-port trunk)</td></tr>
<tr><td>L2 100 km</td><td>7 (one 7-port trunk)</td><td>3 (one 3-port trunk)</td></tr>
<tr><td>LD 200 km</td><td>3 (one 3-port trunk)</td><td>0</td></tr>
<tr><td>LD 250 km</td><td>3 (one 3-port trunk)</td><td>0</td></tr>
<tr><td>LD 500 km</td><td>0</td><td>0</td></tr>
</table>
</td></tr>
</table>

Table 2 New features in Fabric OS 4.4.x (continued)

Category	Feature
SNMP support	Starting with the FOS release, HP added the ability to enable traps on a more granular level. After an upgrade, the `snmpMibCapSet` command should be run from the CLI to update the settings. This allows additional flexibility in controlling SNMP traps. The default setting is for all traps to be disabled.
MPRS enhancements	Max hop count (MP Router) – CLI only WAN_TOV (FC Router) – CLI only
Scalability	Supports 1280 total ports and 34 domains with or without security enabled. Supports 2560 total ports and 50 domains in a fabric consisting of switches with 32 ports or more running Fabric OS 4.4.0b.
Usability improvements	Security Management – enables or merges secure fabrics (Fabric Manager only) Web Tools and Fabric Manager usability improvements Enhanced Fabric Watch support

Advanced Web Tools updates

For instructions on installing Mozilla 1.6 on Solaris 2.8 and Solaris 2.9, go to the web site:

http://ftp27f.newaol.com/pub/mozilla.org/mozilla/releases/mozilla1.6/README

Issue: The Mozilla browser does not support the Switch Admin module properly in Fabric OS 2.6.x. In Fabric OS 2.6.2, a warning message is displayed. For other 2.6.x versions, no warning message is displayed.

Workaround: Use Netscape 4.7.7 or later.

The browsers, operating systems, and Java Plug-ins also supported introduce the limitations in Table 3 when using mixed OS versions in Advanced Web Tools 4.4.0b.

Table 3 Limitations with Advanced Web Tools

Launch switch environment	Problems
Firmware: Fabric OS 3.1+ or 4.1+ **Operating System:** any supported OS with a supported browser **Browser:** any supported browser on a supported OS	**Issue:** When viewing the topology from Web Tools, if your initial login was a v3.1+ or v4.1+ switch and you view the topology from a switch with previous version of Fabric OS, there is no print function available in the Fabric Topology window. Web Tools 3.1.0+ and 4.1.0+ include a Print button in the Fabric Topology window; earlier versions do not. **Workaround:** If the Fabric Topology window does not display a Print button, you can right-click anywhere inside the window and select **Print** from the popup menu.
Firmware: Fabric OS 2.6.x **Operating System:** Solaris **Browser:** Mozilla	**Issue:** The Switch Admin does not launch correctly. If you try to launch the Switch Admin using Fabric OS 2.6.2 on a Solaris operating system with a Mozilla browser, a warning dialog box is displayed, telling you to use the Netscape browser. If you try to launch the Switch Admin using Fabric OS 2.6.1 or earlier on a Solaris operating system with a Mozilla browser, the Switch Admin fails and no warning is displayed. **Workaround:** Although the Netscape browser is not supported by Web Tools for switches running Fabric OS 2.6.2, 3.1.2, 4.2.0, or later, if you must access the Switch Admin on a switch running Fabric OS 2.6.x from a Solaris OS, use the Netscape 4.7.7 browser.
Firmware: version earlier than Fabric OS 2.6.2, 3.1.2, or 4.2.0 with secure mode enabled **Operating System:** Solaris **Browser:** Mozilla	**Issue:** If you try to launch the Switch Admin, Zoning, Fabric Watch, or High Availability Admin using firmware versions earlier than 2.6.2, 3.1.2, or 4.2.0 on a Solaris OS with a Mozilla browser, the browser might crash due to a buffer overflow problem with Mozilla. **Workaround:** Although the Netscape browser is not supported by Web Tools for switches running Fabric OS 2.6.2, 3.1.2, 4.2.0, or later, if you must access the Switch Admin, Zoning, Fabric Watch, or High Availability Admin on a switch running firmware versions earlier than 2.6.2, 3.1.2, or 4.2.0 from a Solaris OS, use the Netscape 4.7.7 browser.

Table 3 Limitations with Advanced Web Tools (continued)

Launch switch environment	Problems
Firmware: version earlier than Fabric OS 2.6.2, 3.1.2, or 4.2.0 **Operating System:** any supported OS with a supported browser **Browser:** any supported browser on a supported OS	**Issue:** When trying to access a switch running firmware versions earlier than Fabric OS 2.6.2, 3.1.2, or 4.2.0 from the launch switch, Switch Explorer will display a null pointer exception and the SwitchInfo applet will not be displayed. Switch Explorer does not work properly with switches running the latest firmware. **Workaround:** Use a launch switch running Fabric OS 2.6.2, 3.1.2, 4.2.0, or later to access the switch.
Firmware: version earlier than Fabric OS 4.4.0 **Operating System:** any supported OS with a supported browser **Browser:** any supported browser on a supported OS	**Issue:** When trying to perform end-to-end monitoring (Advanced Performance Monitoring) on a local switch with a Fabric OS earlier than 4.4.0, the SAN Switch 4/32 is displayed as a 16-port switch. **Workaround:** For a SAN Switch 4/32, use a launch switch running Fabric OS 4.4.0 or later to perform end-to-end monitoring on the switch.
Firmware: version earlier than Fabric OS 4.4.0 **Operating System:** any supported OS with a supported browser **Browser:** any supported browser on a supported OS	**Issue:** When trying to perform zoning on a local switch with a Fabric OS version earlier than 4.4.0, the SAN Switch 4/32 is 16-port switch. **Workaround:** If you are running Secure Fabric OS, select a switch running Fabric OS 4.4.0 or later as the primary FCS switch. If you are not running Secure Fabric OS, use a launch switch running Fabric OS 4.4.0 or later to perform zoning on the switch.
Firmware: version earlier than Fabric OS 2.6.2, 3.1.2, or 4.2.0 **Operating System:** Solaris **Browser:** Netscape	**Issue:** Any switches running Fabric OS 2.6.2, 3.1.2, 4.2.0, or later, are unsupported through Netscape. **Workaround:** The Netscape browser is not supported by Web Tools for switches running Fabric OS 2.6.2, 3.1.2, 4.2.0, or later. Use the Mozilla browser version 1.6 to manage all of your switches from a Solaris OS.
Firmware: version earlier than Fabric OS 2.6.2, 3.0.x, or 4.0.x **Operating System:** Windows **Browser:** Internet Explorer	**Issue:** When you are trying to run Fabric View with a large fabric, the browser might crash. **Workaround:** Use a launch switch that runs Fabric OS 2.6.1, 3.0.x, 4.0.x, or later so that you can use Switch Explorer (rather than Fabric View). Use a launch switch with 2.6.2, 3.1.x, 4.1.x, or later.

Table 4, Table 5, and Table 6 list important information for switches running Fabric OS 4.4.0b.

Table 4 Information Specific to SAN Switch 4/32

SAN Switch 4/32	Description
SWL and LWL SFP modules release mechanism	The SAN Switch 4/32 uses an octal-style SFP cage that places SFPs in close proximity. As a result of the physical space limitation between the SFPs, HP requires the use of approved SFP modules only. Using an approved SFP module eliminates issues associated with the fit and removal of the module. Specifically, SFPs with wide bail latch mechanisms that are not flush with the body of the SFP or SFPs with "push-tab" removal mechanisms might prevent the proper insertion or removal of the SFP module. At the time of release, the following SFPs were certified for use with the SAN Switch 4/32: • HP StorageWorks 4Gb SW SnglePK SFP Transceiver, A7446A • Short wavelength SFP, A6515A* or 300834-B21** • Long wavelength SFP, 10 km, A6516A* or 300835-B21** • Long wavelength SFP, 35 km, 300836-B21** * Premerger HP part number ** Premerger Compaq part number
LED, system status	The system status LED blink behavior in the SAN Switch 4/32 is different from that of legacy HP StorageWorks switches. Legacy products blink system status with the pattern amber, off, amber, off. The SAN Switch 4/32 blinks with the pattern amber, green, amber, green.
LED, system power	The system power LED behaves differently in the SAN Switch 4/32 than in SAN Switch 2/8V and SAN Switch 2/16V. In the latter switches, it is solid amber when a power supply FRU fails. In the SAN Switch 4/32, the system power LED remains green, and the system status LED blinks, indicating an error.

Table 4 Information Specific to SAN Switch 4/32 (continued)

SAN Switch 4/32	Description
Fan, RPM reading	The RPM range can differ by as much as 1000 from fan to fan, which is within specifications. At the lowest RPM, the cooling specification is met; at the highest RPM, the acoustic specification is met. In other words, during normal operation, both the lowest and the highest observed fan speeds are within adequate margin of the acoustic and cooling specifications.
WWN	The SAN Switch 4/32 uses a new block of WWN numbers. In addition to the current WWN, HP uses the IEEE Organizationally Unique Identifier (OUI) that was formally owned by Rhapsody Networks (now a part of Brocade Communications Systems, Inc.) for the new block of WWNs. The official IEEE OUI database has been updated to reflect this ownership change. Network and fabric management applications that rely on the use of the original Brocade OUI (00:60:69) to identify Brocade network elements must be updated from the IEEE web site database (location below) to also include the new Brocade OUI (00:05:1E). IEEE OUI and Company_id Assignments: NEW 00-05-1E (hex) Brocade Communications Systems, Inc. 00051E (base 16) Brocade Communications Systems, Inc. 1745 Technology Drive San Jose CA 95110 UNITED STATES OLD 00-60-69 (hex) BROCADE COMMUNICATIONS SYSTEMS, Inc. 006069 (base 16) BROCADE COMMUNICATIONS SYSTEMS, Inc. 1901 GUADALUPE PKWY SAN JOSE CA 95131 UNITED STATES For the IEEE list of public OUI assignments, go to: http://standards.ieee.org/regauth/oui/index.shtml In a management application using a Fabric Access version earlier than 3.0.2, SAN Switch 2/8V and 2/16V are displayed as Rhapsody switches.

Table 5 Core Switch 2/64 Information

Core Switch 2/64	Description
Power supply requirements	Customers reconfiguring SAN Director 2/128-only configurations by adding Core Switch 2/64 blades must ensure that all three power supply FRUs are installed, because Core Switch 2/64 blades have greater power requirements.

Table 6 Fabric OS area information

Fabric OS Area	Description
Compatibility	Sometimes in a mixed fabric of Fabric OS 4.x, 3.x, and 2.x, fabric reconfiguration is caused by link reset on 3.x or 2.x. This happens only in a fabric containing Fabric OS 3.x versions released earlier than 3.1.0 or Fabric OS 2.x versions released earlier than 2.6.1 that are under heavy traffic or CPU-intensive operations, such as large (50 KB) zone database propagation. Use the latest revision of code across all releases in a mixed fabric.
Ethernet port IP addresses	When a Core Switch 2/64 or SAN Director 2/128 fails over to its standby CP for any reason, the IP addresses for the two logical switches move to that CP blade's Ethernet port. This might cause informational ARP address reassignment messages to appear on other switches in the fabric. This is normal behavior, because the association between the IP addresses and the MAC addresses has changed.
Firmware download	During a firmware download, rebooting or power cycling the CPs could corrupt the compact flash. **CAUTION:** Do not attempt to power off the CP board during firmware download, to avoid high risk of corrupting your flash.

Firmware download	Fabric OS 4.1.x, 4.2.x, and 4.4.0b non-disruptive firmware download allows for firmware downgrades and upgrades; however, you might see warning messages like the following:
	
	`0x239 (fabos): Switch: 0, Info PDM-NOTFOUND, 4, File not found`
	
	`(/etc/fabos/mii.0.cfg)`
	
	These warnings can be ignored.

Table 6 Fabric OS area information (continued)

Fabric OS Area	Description
Firmware download: boot ROM	The boot ROM in Fabric OS 4.4.0 is automatically upgraded, by firmware download, to version 4.5.0 in all version 4.x switches. After it has upgraded, the boot ROM will not downgrade if a firmware downgrade is performed. This boot ROM version supports a redundant boot ROM capability and redundant boot environments in the SAN Switch 4/32.
Firmware upgrade	Fabric OS 4.x firmware upgrades include the `release.plist` file. There is a separate `release.plist` file for each platform; the correct one is automatically selected when the `firmwareDownload` command is executed. Provide the full path name; do not attempt to locate the `release.plist` file in the top-level directory.
HA switch reboot failure	When a switch reboot or a failover occurs before POST is complete, the HA resynchronization is disrupted. HA will not resynchronize until POST completes. **CAUTION:** To avoid disruptive failover, allow POST to complete before performing a switch reboot or failover.

Invalid gateway IP address error message	The user will see the following message on the console during startup when the Ethernet IP and gateway IP addresses are set to the defaults:
	`SIOCADDRT: Invalid argument`
	`.....`
	`ip.c:311:Invalid gateway IP address 0.0.0.0`
	This is a display issue only and does not affect the functionality of the switch.

IP address	**CAUTION:** Do not set a switch or CP IP address for the Ethernet interface to `0.0.0.0`.
Logging: `syslog.conf`	In Fabric OS 4.x, the "kern" facility for syslog is no longer supported. You must update all `syslog.conf` files to support local7 facilities. There is a new `syslogdFacility` command to set the facility level that will be used.

Table 6 Fabric OS area information (continued)

Fabric OS Area	Description
Logging: Solaris syslogd local7 users	When using the new `syslogdFacility` command to set the local7 level, if an even-numbered facility level is selected (for example, 0, 2, 4 or 6), all switch Critical system messages appear in the odd-numbered `.emerg` facility level file on the target Solaris systems: for example, `local6.emerg` will appear in `local7.emerg` if syslogd facility level 6 is selected. This behavior is not observed when selecting an odd-numbered facility level initially on the switch. The problem also does not occur on Linux server systems and is currently under investigation with Sun. The immediate workaround is to select an odd-numbered syslogd facility level when using the `syslogdFacility` command.
Logging: `supportFTP` command	When setting the automatic FTP IP address, userid, password, and associated directory path for use with the `supportFtp` command, the parameters are not checked immediately for validity. Generate a manual trace dump to confirm the FTP transfer immediately. First, use `supportFtp` to set up FTP parameters. Next, use `traceFtp -e` to enable automatic transfer of the trace dumps. Finally, use the traceDump -n command to create a dump. Confirm that the FTP transfer was successful.
Logging: `chassisName` command	Run the `chassisName` command before upgrading to Fabric OS 4.4.0b so that any subsequent error messages related to the chassis and switch services will be logged correctly to the system error log. For further information, refer to the *HP StorageWorks Fabric OS 4.4.0b procedures user guide.*
Logging: `errClear` command	All error logs are persistent in Fabric OS 4.x, so the use of the `errClear` command must be carefully considered. All persistent errors (all messages) are erased on version 4.4.0b switches, as opposed to just those in local memory.
Ports on Demand	The SAN Switch 4/32 with a 16-port factory configuration requires Ports on Demand licenses to enable and use switch ports 16 through 31.
`rsh` and `rlogin`	The programs `rsh` and `rlogin` are not supported. If you try to use an `rsh` or `rlogin` client, Fabric OS rejects the login attempt; however, because most `rsh` and `rlogin` clients continue to retry the login for several seconds before timing out, your system appears to hang. Secure connections are available via a Secure Shell (SSH).
Security: default password length	the initial login prompt for a switch accepts a maximum password length of eight characters. Any characters beyond the eighth are ignored.

Table 6 Fabric OS area information (continued)

Fabric OS Area	Description
Security: error counter	Telnet security errors that arrive in quick succession are recorded as a single violation by the telnet error counter. For example, a login error from a host whose IP address is 192.168.44.247 is logged as follows: `Security violation: Login failure attempt via TELNET/SSH/RSH. IP Addr: 192.168.44.247` If another login violation occurs immediately, the message remains the same and only the error counter is incremented.
Security: FCS list	Adding switches to the FCS list does not automatically join the switches in a secure fabric. Add the switches to the FCS list of the new switches and the target fabric. Reset the version stamp to `0` and either reset the E_Ports or perform a switch disable and enable for the switches to join.
Security: HTTP policy	If HTTP_Policy is empty, you will not be able to log in and will receive a `Page not found` error. This is expected behavior for this policy.
Security: invalid certificate	Web Tools and Fabric OS are not consistent in how they report switch certificate status. Web Tools reports a valid certificate with extra characters appended to it as invalid, whereas Fabric OS accepts the certificate and allows a `secModeEnable` command to complete successfully.
Security: PKICERT utility, CSR syntax	Before using the PKICERT utility to prepare a certificate signing request (CSR), ensure that there are no spaces in the switch names of any switches in the fabric. The web site that processes the CSRs and generates the digital certificates does not accept switch names containing spaces; CSRs that do not conform to this requirement are rejected.

Table 6 Fabric OS area information (continued)

Fabric OS Area	Description
Security: PKICERT utility, installing certificates	PKICERT 1.0.6 is the most current version of the PKICERT utility. When running the PKICERT utility to install switch certificates in a fabric that did not previously contain switch certificates and now includes a SAN Director 2/128, select the option to specify that certificates are installed only on those switches that do not currently contain certificates. SAN Director 2/128s are delivered with switch certificates preinstalled. Switches that were originally shipped with Fabric OS 2.5, 3.0, and 4.0 and have never installed and enabled Secure Fabric OS do not have certificates installed. If you need to reinstall switch certificates in a SAN Director 2/128, follow these guidelines: • The host running PKICERT 1.0.6 must be connected to a proxy switch running Fabric OS 2.6.2, 3.1.2, 4.2.0, or later. • All switches in the fabric other than the SAN Director 2/128 can run versions 2.6.1, 3.1, 4.1, or newer firmware.
Security: selectelnet	If you try to log in to a switch through a sectelnet client while that switch is in the process of either booting or shutting down, you might see the message, `Random number generation failed`. The message is printed by the `sectelnet` client because the switch telnet service is not running (the service has either already been shut down, if the switch is shutting down, or is not yet established, if the switch is booting). If the switch is booting, wait a few seconds and try again.
Security: secure mode	If an upgrade from Fabric OS 4.0.x to 4.1.x or 4.2 x is performed, followed by a downgrade to Fabric OS 4.0.x and upgrade back to Fabric OS 4.1.x or 4.2.x, the switch password state is reset and prompts the user for new secure mode passwords. This does not apply to upgrades from version 4.2.0 to 4.4.0.
Security: secure mode, passwd telnet	**CAUTION:** Using the passwd `telnet` command in secure mode to change the password, results in all sessions using that password being logged out, including the session that changed the password. This is expected behavior. The session terminates if you change the password in secure mode.
Fabric OS: CLI commands, failover, and port disable	Changing port configurations during a failover can cause ports to be disabled. Reissue the command after the failover is complete to bring the ports online.

Table 6 Fabric OS area information (continued)

Fabric OS Area	Description
Security: SLAP fail counter and two switches	The SLAP counter is designed to work when all the switches in the fabric are in secure mode. All the switches in the fabric must be in secure mode for accurate SLAP statistics.
Security: SSH login	To properly connect SSH login, wait for secure mode to complete before rebooting or performing HA failover on the Core Switch 2/64 or SAN Director 2/128. If secure mode is enabled and a reboot occurs before secure mode completes, SSH login will not connect and will go to the wrong MAC address because the active CP changes after an HA failover.
Support	Fabric OS 4.4.0b users should run the `supportSave` command instead of, or in addition to, the `supportShow` command. Doing so gathers additional switch details and sends by FTP all files to a customer server. Refer to the *HP StorageWorks Fabric OS 4.x procedures user guide* for instructions on setting up FTP services.
Trace dump	Fabric OS 4.4.0b users should set up automatic FTP trace dump transfers to customer FTP servers. Doing so will minimize trace dump overwrites. Refer to the *HP StorageWorks Fabric OS 4.x procedures user guide* for instructions on setting up FTP services.
Trunking	You can disable or enable trunking using the `switchCfgTrunk` or `portCfgTrunk` commands. When the command is executed to update the trunking configuration, the ports for which the configuration applies are disabled and reenabled with the new trunking configuration (as a result, traffic through those ports could be disrupted.)
Upgrading to Fabric OS 4.4.0b	Recommended upgrade procedures to Fabric OS 4.4.0b include the following: Before loading version 4.4.0b: • Run `configupload` to create a backup configuration, if the user wants to return to version 4.2.x. • Run `supportShow` to capture the previous error logs in version 4.2.x. • Run `chassisName` to change the default factory configuration to a more meaningful name. After loading Fabric OS 4.4.0b, see "Logging, supportFTP," earlier in this table.

Table 6 Fabric OS area information (continued)

Fabric OS Area	Description
WWN card FRU repair	If an HA failover or power cycle occurs during a FRU replacement on the WWN card, the Core Switch 2/64 or SAN Director 2/128 becomes nonoperational. **CAUTION:** When performing a FRU replacement on a WWN card, complete the FRU procedure before attempting an HA failover or power cycling the chassis.
Zoning	Issue: Domain 0 in a zoning configuration file is invalid but has not been previously enforced. Workaround: Before upgrading a switch to Fabric OS 4.2.x or later, ensure that the fabric's zoning configuration does not contain domain ID 0, which is used for zoning. This is specific only to 4.x switches.
Zoning	When enabling a new zone configuration, the user must ensure that the size of the zone configuration does not exceed the minimum size supported by all the switches in the fabric. Zone configuration sizes can be determined by executing `cfgsize` on all the switches in the fabric.

Documentation updates

This section provides information on last-minute additions and corrections to 4.x documentation.

HP StorageWorks Fabric OS 4.x command reference guide, part number: AA-RVHVA-TE

The following lists changes to the *HP StorageWorks Fabric OS 4.x command reference guide*. For example, the following commands are not supported in Fabric OS 4.4.x:

- `diagEsdPorts`
- `diagModePr`
- `diagSilkworm`
- `numSwitchSet`
- `numSwitchShow`
- `portCfgMcastLoopback`
- `tsHelp`

On page 112:

Remove the reference to "fabric.ops.mode.vcEncode: 0" from the `configShow` output in the Example section.

On page 639:

The `supportSave` command was modified in this release, as follows:

`supportSave`

Under the `supportSave` command, in the "Description" section, replace the following text:

"RASLOG *switchname-slot-YYYYMMDDHHMM-errDumpAll.ss*

TRACE *switchname-slot-YYYYMMDDHHMM-tracedump.dmp*

`supportSave` *switchname-slot-YYYYMMDDHHMM-supportShow* (saved in the specified remote directory)"

With this text:

"RASLOG *chassisname-slot-YYYYMMDDHHMM-errDumpAll.ss*

TRACE *chassisname-slot-YYYYMMDDHHMM-tracedump.dmp*

`supportShow` *chassisname-slot-YYYYMMDDHHMM-supportShow* (saved in the specified remote directory)"

On page 223:

Under `fportTest`, in the "Operands" section, replace the `–seed` and `–width` operand descriptions as follows:

`–seed` *`payload_pattern`*

Specify the pattern of the test packets payload. Valid values are:

0 CSPAT (default)
1 BYTE_LFST
2 CHALF_Sq
3 QUAD_NOT
4 CQRT_SQ
5 CRPAT
6 RANDOM

`–width` *`pattern width`*

Specify the width of the pattern that the user specified. When payload_pattern is set to 0x00, pattern_width is ignored. Valid values are:

1 byte (default)
2 word
3 quad

On page 268:

Under `historyShow`, in the "Description" section, add the following text:

The Core Switch 2/64 and the SAN Director 2/128 support 50 records. Other switch models, which contain field-replaceable units (FRUs), support 28 records.

On page 639:

Under `supportSave`, in the "Description" section, replace the following text:

Use this command to save RASLOG, TRACE, and `supportShow` information for the local CP to a remote FTP location.

with this text:

Use this command to save RASLog, TRACE, and `supportShow` (active CP only) information for the local CP to a remote FTP location.

HP StorageWorks Fabric OS 4.x MIB reference guide, part number: AA-RVHXA-TE

On page 32, add the following section after Table 3:

Firmware upgrades and enabled traps

Prior to Fabric OS v4.4, traps were turned on and off as a group (for example, the SW-Trap, or FA-Trap). In these versions of the Fabric OS it was not possible to set individual traps (such as, swSensorStatusChangeTrap, swTrackChangesTrap, or connUnitEventTrap).

In Fabric OS v4.4 or above you can turn on and off traps individually within a trap group. The individual traps need to be enabled explicitly after the corresponding trap group is enabled.

Because the pre-Fabric OS v4.4 firmware only has trap group level settings, when you upgrade to the Fabric OS v4.4 firmware or above, individual traps are turned off by default even if the corresponding trap group was enabled before upgrading. When moving from a download version to Fabric OS v4.4 or above you must use either the `snmpmibvapset` or `snmpconfig` command to turn on explicitly the individual traps within each trap group.

HP StorageWorks Fabric OS 4.x procedures user guide, part number: AA-RVHWA-TE

On page 50, in the "To enable or disable RADIUS service" section; add the following Warning:

⚠ **WARNING!** When you issue `aaaConfig --radius on`, all sessions in which you are logged on are logged off immediately, and local authentication is disabled.

On page 81, at the end of the "Upgrading Core Switch 2/64 and SAN Director 2/128" section add the following **Caution**:

△ **CAUTION:** To successfully download firmware to a Director you must have an active Ethernet connection on both CPs.

On page 132, the following text should be added to the "Creating and Modifying Zoning Configurations" section:

When enabling a new zone configuration, you must ensure that the size of the configuration does not exceed the minimum size supported by all switches in the fabric. This is particularly important if and when you downgrade to a Fabric OS version that supports a smaller zone database than the current Fabric OS version. In this scenario, the zone database in the current Fabric OS version would have to be changed to the smaller zone database before the downgrade.

You can use the `cfgSize` command to check both the maximum available size and the currently saved size on all switches. Refer to the *HP StorageWorks Fabric OS 4.x command reference guide* for details on the `cfgSize c`ommand. If you believe you are approaching the maximum, you can save a partially completed zoning configuration and use the `cfgSize` command to determine the remaining space."

HP StorageWorks Fabric OS 4.x features overview, part number: AA-RVHTA-TE

On page 26 in the first paragraph, replace the following text:

> Cable lengths for participating links should differ no more than 30 meters.

With this text:

> Cable lengths for participating links should differ no more than 550 meters. For optimal performance, HP recommends a difference no greater than 30 meters.

HP StorageWorks Fabric OS 4.x Fabric Watch user guide, part number: AA-RVJ0A-TE

The following rows replace the existing rows "Invalid CRC Count," "Link Failure Count," and "State Changes" in Table 25, "Port Class Threshold Defaults," on page 93.

Area	Description	Default Threshold Settings	Default Alarm Settings	Threshold State
Link Failure Count	Monitors the number of link failures	Unit: Errors Time Base: minute Low: 0 High: 5 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Out of range In range
Invalid CRC Count	Monitors the number of CRC errors	Unit: Errors Time Base: minute Low: 0 High: 5 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Out of range In range
Invalid CRC Count	Monitors state changes	Unit: Changes Time Base: minute Low: 0 High: 5 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Out of range In range

The following row replaces the existing row, "State Changes," in Table 26, "E_Port Class Threshold Defaults," on page 96.

Area	Description	Default Threshold Settings	Default Alarm Settings	Threshold State
State Changes	Monitors state changes	Unit: Changes Time Base: minute Low: 0 High: 5 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Out of range In range

The following table replaces the existing Table 27, "F/FL_Port Class Threshold Defaults," on page 98:

Area	Description	Default Threshold Settings	Default Alarm Settings	Threshold State
Loss of Synchronization Count	Monitors the number of loss of synchronization errors	Unit: Errors Time Base: minute Low: 0 High: 5 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Out of range In range
Receive Performance	Monitors the receive rate, by percentage	Unit: Percent (%) Time Base: minute Low: 0 High: 100 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Informative Informative Informative
State Changes	Monitors state changes	Unit: Changes Time Base: minute Low: 0 High: 5 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Out of range In range
Transmit Performance	Monitors the transmit rate, by percentage	Unit: Percent (%) Time Base: minute Low: 0 High: 100 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Informative Informative Informative
Invalid CRC Count	Monitors the number of CRC errors	Unit: Errors Time Base: minute Low: 0 High: 5 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Out of range In range

Area	Description	Default Threshold Settings	Default Alarm Settings	Threshold State
Invalid Transmission Word	Monitors the number of invalid words transmitted	Unit: Errors Time Base: minute Low: 0 High: 5 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Out of range In range
Link Failure Count	Monitors the number of link failures	Unit: Errors Time Base: minute Low: 0 High: 5 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Out of range In range
Loss of Signal Count	Monitors the number of signal loss errors	Unit: Errors Time Base: minute Low: 0 High: 5 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Out of range In range
Primitive Sequence Protocol Errors	Monitors the number of primitive sequence errors	Unit: Errors Time Base: minute Low: 0 High: 5 Buffer: 0	Changed: 0 Below: 0 Above: 0 In-between: 0	Informative Informative Out of range In range

The following row replaces the existing row “Flash” in Table 28, “Resource Class Threshold Defaults,” on page 98:

Area	Description	Default Threshold Settings	Default Alarm Settings	Threshold State
Flash	Monitors the percentage of compact flash used	Unit: Percent (%) Time Base: none Low: 0 High: 85 Buffer: 0	Changed: 0 Below: 3 Above: 3 In-between: 1	Informative Informative Out of range In range

SAN Switch 2/8V, 2/16V, 2/16N, 4/32 installation guide, part number: AA-RVULC-TE

On page 24, insert the following Important Note after step 1:

IMPORTANT: Before installing a license key, you must insert transceivers in the ports to be activated. Remember to insert the transceivers in the lowest group of inactive port numbers first. For example, if only 16 ports are currently active and you are installing one 8-Port Upgrade license key, make sure to insert the transceivers in ports 16 through 23. If you later install a second license key, insert the transceivers in ports 24 through 31.

On page 104, replace the following Note text:

> The 0 ° to 40 °Celsius range applies to the ambient air temperature at the air intake vents on the nonport side of the switch. The temperature inside the switch can be up to 75 °Celsius during switch operation.
>
> If the internal temperature range exceeds the operating ranges of the components, the LEDs, error messages, and Fabric Watch alerts will indicate a problem. Enter the `tempshow` or Fabric Watch commands to view temperature status.

With this text:

> The 0 ° to 40 °Celsius range applies to the ambient air temperature at the air intake vents on the nonport side of the switch. The temperature inside the switch can be up to 65 °Celsius during switch operation.
>
> If the internal temperature range exceeds the operating ranges of the components, the LEDs, error messages, and Fabric Watch alerts will indicate a problem. Enter the `tempshow` or Fabric Watch commands to view temperature status.
>
> If the internal temperature range exceeds the safe range, the SAN Switch 2/8V and 2/16V reboot. To remove power from the SAN Switch 2/8V and 2/16V, refer to the section "Powering on and off" on page 62.

On page 107, under the heading "4/32 Fibre Channel Port Specifications," replace the following text:

> The ports are capable of operating at 1, 2, or 4 Gbit/sec and are able to autonegotiate to the higher of 1 or 2 Gbit/sec. Operation at 4 Gbit/sec must be manually set.

With this text:

> The ports are capable of operating at 1, 2, or 4 Gbit/sec and are able to autonegotiate to the higher of 1, 2, or 4 Gbit/sec.

Core Switch 2/64 and SAN Director 2/128 installation guide, part number: AA-RVUSC-TE

This section provides information on last-minute additions or corrections to the *HP StorageWorks Core Switch 2/64 and SAN Director 2/128 installation guide,* part number AA–RVUSC–TE.

On page 45, insert the following "Powering off the switch" section:

To power off the Core Switch 2/64:

1. Shut down both logical switches:
   a. Enter the `switchShutdown` command to ensure a graceful shutdown of Switch 1, and verify the command has completed and displayed the message "Cleaning up kernel modules.....Done".
   b. From the active CP card session, log into Switch 0 by entering the login command, logging in as admin, then entering "0" to log into Switch 0.
   c. Enter the `switchShutdown` command to ensure a graceful shutdown of Switch 0, and verify the command has completed and displayed the message "Cleaning up kernel modules.....Done".

Example:

```
SW1:admin> switchshutdown
Stopping all switch daemons...Done.
Powering off slot 7...Done.
Powering off slot 10...Done.
Checking all slots are powered off...Done.
Cleaning up kernel modules.....Done
SW1:admin>
SW1:admin> login
login: admin
Enter Switch Number to Login <0 or 1>: 0
password: xxxx
SW0:admin>
SW0:admin> switchshutdown
Stopping all switch daemons...Done.
Powering off slot 1...Done.
Powering off slot 4...Done.
Checking all slots are powered off...Done.
Cleaning up kernel modules.....Done
SW0:admin>
```

For details on the `switchShutdown` command, refer to the *HP StorageWorks Fabric OS 4.x command reference guide*.

Power off the chassis by flipping both AC power switches to "0" (LEDs inside AC power switches should turn off). To maintain the ground connection, leave both power cords connected to the chassis and to an electrical outlet.

On Page 110, add the following paragraph before the Note:

A SAN Director 2/128 that is fully populated with FC2-16 blades can function on one power supply. Redundancy of the power supply is achieved using power supply FRUs in slots 1 and 2. You can populate all 4 power supply slots in the SAN Director 2/128 for maximum redundancy. Power supply FRUs are interchangeable between the Core Switch 2/64 and SAN Director 2/128.

On page 110, replace the following statement in the section "Replacing a power supply and filler panel":

> The left power connector provides power to the power supplies in slots #1 and #3 and the right power connector provides power to the power supplies in slots #2 and #4. The power connectors and the power supply slots are color coded to identify which power connectors provide power to which power supply slots. See Figure 1 on page 16 for power supply location.

With this statement:

> The left power connector provides power to the power supplies in slots #1 and #3 (color-coded blue). The right power connector provides power to the power supplies in power supply slots #2 and #4 (color-coded yellow). The power connectors and the power supply slots are color coded to identify which power connectors provide power to each of the power supply slots. See Figure 1 on page 16 for power supply locations.

Replace Table 12 on page 76 with the following:

Table12: WWN Bezel LED Patterns

LED location and purpose	LED Color	Status	Recommended Action
16-Port card/CP card Power	Steady green	Power is OK	No action required.
	Flashing green	Power to port card is OK; however, this LED flashes if the port card status LED is flashing.	Check port card status LED and determine if it is flashing slow (2 second increments) or fast (1/2 second increments) and then take appropriate action.
	No light (LED is off)	No port card is present or the power source is unavailable.	Insert port card, or check AC switch and power source.
	NOTE: Check the individual port card (see Figure 15 on page 81) or CP card power LEDs (see Figure 16 on page 85) on the port side of the chassis to confirm the LED patterns.		
16-Port card/CP card Status	Steady Amber	Port card is faulty.	Check port card.
	Slow-flashing amber (2 seconds on; then 2 seconds off)	Port card is not seated correctly or is faulty.	Pull card out and reseat it. If LED continues to flash, replace card.
	Fast-flashing amber (1/2 second on; then 1/2 second off)	Environmental range exceeded or port card failed diagnostics (run during POST or manually).	Check for out-of-bounds environmental range and correct it. Replace card if it fails diagnostics.
	No light (LED is off)	Port card is either healthy or does not have power.	Verify that the port card power LED is on.

Table12: WWN Bezel LED Patterns (continued)

LED location and purpose	LED Color	Status	Recommended Action
	NOTE: Check the individual port card (see Figure 15 on page 81) or CP card status LEDs (see Figure 16 on page 85) on the port side of the chassis to confirm the LED patterns.		
Power supply/ Power/Status	Steady green	Power is OK.	No action required.
	Steady amber	Power supply is faulty.	Ensure that the correct AC power switch is on and the power supply is seated. If LED remains on, replace the power supply.
	Slow-flashing amber	FRU header (SEEPROM cannot be read) due to I2C problem.	Replace power supply.
	Fast-flashing amber	Power supply is about to fail due to failing fan inside the power supply.	Replace power supply.
	No light (LED is off)	No power supply present or is not inserted or seated properly, or power source is unavailable.	Insert power supply module, ensure it is seated properly, or check AC switch and power source.
	NOTE: Check the individual power supply LEDs on the port side of the chassis to confirm the LED patterns (see Figure 17 on page 72).		

NOTE: If a port card slot or power supply bay has a filler panel installed, the corresponding LEDs on the WWN card do not light up.

On page 136, Table 19, "Core Switch 2/64 and SAN Director 2/128 system specifications," replace the following table entry:

"Switch latency <2.1 μsec any port to any port at 2 Gb/sec, cut-through routing"

With this table entry:

"Switch latency 2.05 < 2.35 μsec any port to any port at 2 Gbit/sec, cut-through routing"

On page 56, under the heading "Configure IP Addresses for CP Cards," remove the first sentence in the Note:

Use a block of three IP addresses that are consecutively numbered in the last octet. The IP and gateway addresses must reside on the same subnet.

Closed issues from Fabric OS 4.4.0c

Table 7 lists issues resolved with the release of Fabric OS version 4.4.0c.

Table 7 Fabric OS 4.4.0c closed issues summary

Closed defect	Status
Issue: In switches running Fabric OS 4.x, the blade faults when it encounters BLOOM parity errors in the following SRAMs: R2T, TFR, STATS, SMI, FLT, PHAN	Fixed
Issue: In PID Format 2 configuration, host lost communication with device when another host reboot on a different port. For example: When port x is reset, traffic on port x +16 is lost.	Fixed
Issue: Path lost during storage virtualization device nodes reboot with SAN Switch 4/32 Example: At a high level, path loss during node reset on a storage virtualization device. The finisar trace and internal trace log identified multiple symptoms: • Many soft port faults due to the node not cutting off light during reboot. • PRLI dropped by switch due to duplicate SID cam entries • Route for a port was not set up correctly on the switch.	Fixed

Table 7 Fabric OS 4.4.0c closed issues summary

Closed defect	Status
Issue: SAN Switch 2/32 slot-0 faulted and shows "No ports found in the system!!!" during voltage variation. Error Messages: [HIL-1101], 107053,, ERROR, Term_113, Slot 0 faulted, 2.5V (3.30) is above threshold." and slot is faulted. and CRITICAL, Term_113, System fan(s) status Fan1=3276RPM Fan2=3443RPM Fan3=3245RPM Fan4=3443RPM Fan5=3276RPM Fan6=	Fixed
Issue: Name Server (NS) does not respond and shows the error message, 33170 ms.	Fixed
Issue: BL_1013 error message displays on console, indicating excessive interrupts during cable pull, switch reboot or host reboot. In very rare cases if and when the double fault - fdet occurs, the blade is faulted.	Fixed
Issue: The `configdownload` command fails and issues an error message: ficuImport failed with rc=2l	Fixed
Issue: The `configupload` command does not save the FICO-CUP data in FOS 4.4.0x only.	Fixed
Issue: After firmwaredownload -sf on Core Switch 2/64 , received many instances of this message: "Calling cal_CreateBladeObjectKeys on 43100000"	Fixed

Table 7 Fabric OS 4.4.0c closed issues summary

Closed defect	Status
Issue: SAN Switch 2/32 reports Fabric Watch error. Occurs when Fabric Watch is initialized before environment monitor daemon (emd) is fully ready.	Fixed
Issue: `systemverification` command fails preventing an admin user from running diagnostics on a switch,	Fixed

Closed issues from Fabric OS 4.4.0d

Table 8 lists issues resolved with the release of Fabric OS version 4.4.0d.

Table 8 Fabric OS 4.4.0d closed issues summary

Closed defect	Status
Issue: "Switch bring-up timed out " during hot code load Symptom: SAN Director 2/128, Switch bring-up timed out <<-- HA timed out hashow: Local CP (Slot 6, CP1): Active Remote CP (Slot 5, CP0): Standby, Healthy HA enabled, Heartbeat Up, HA State not in sync Solution: After failover, the EVMD needs to connect to the clients that were connected to the switch before the failover. EVMD is trying to establish the connections before failover completes.	Fixed
Issue: Disabling an active zone via `cfgDisbale` disrupts Fiber Channel IO. Symptom: `cfgDisable` about 3500 Fibre Channel frame loss on point to point traffic.	Fixed
Issue: "Zoning transaction aborted" is logged as error message caused by 3rd party application call home. Symptom: 3rd party application call home when application probes zone and aborts the transaction intentionally.	Fixed
Issue: API returns error intermittently when trying to establish a session with the proxy switch when Fabric Manager tries to retrieve Port Stats and End-to-End Monitoring. Symptom: When Fabric Manager uses API, it returns -21 error code when the FabAPI_EstablishFabricSessionEx call is being made.	Fixed

Table 8 Fabric OS 4.4.0d closed issues summary

Closed defect	Status
Issue: Bad RSCN from 3rd party switch caused name server to assert and switch panic Symptom: kSWD: Detected Unexpected Termination of: ''[0]nsd	Fixed
Issue: Common Access Layer Daemon (CALD) crash generated core dump files and switch panic. Symptom: When an overnight script was run to disable/enable and to change speed on E-ports, CALD generated core dump files.	Fixed
Issue: In PID Format 2 (Extended Edge PID Format), extend the support beyond 127 ports. In PID Format 2 (Extend Edge PID FORMAT), change max port support to 256. This change does not impact PID format 1 (the most common used Core PID Format). It only impacts PID format 2 (Extended Edge PID)	Fixed
Issue: Web Tools/FM displays incorrect SCSI inquiry name for iSCSI initiator and cannot see all devices when launch switch is FOS 4.4.x Symptom: When using FOS4.4.x as launch switch, the inquiry name for the iSCSI initiator is displayed incorrectly as a long hex string. Also it does not report the hostname capable FDMI devices.	Fixed

Table 8 Fabric OS 4.4.0d closed issues summary

Closed defect	Status
Issue: During firmware upgrade from FOS4.0.2x to FOS 4.4.0x, zone configuration is lost if switch is rebooted without any prior zone changes Symptom: During the upgrade from internal FOS v4.0.2 to v4.4.0x, there is a loss of zoning configuration. Even though `cfgshow` is empty, it will not merge after `portdisable/enable`. When workaround by using configdownload with a saved configuration file created prior to FOS 4.4.0, configdownload fails with vcEncoded mode not supported on FOS4.4.0x.	Fixed
Issue: The RPA and RPRT is not forwarded to FOS5.0 and later versions Symptom: When local domain HBA/port information changes, the information is not propagated to domains running FOS5.0 or higher.	Fixed
Issue: Cannot create DCC_POLICY by using * to include port numbers greater than 127 in the DCC_POLICY. Symptom: secpolicycreate "DCC_POLICY", "domainid(*)" on a platform with more than 128 port, fails with VERIFY - Failed expression: strlen(mbrBuf) > 0	Fixed
Issue: ConnUnitPortFCid MIB changed format in FOS 4.4.0x Symptom: Output from early FOS was in byte data format. This was changed to asci data for FOS4.4.0x which caused applications relying on the old format to break.	Fixed

Table 8 Fabric OS 4.4.0d closed issues summary

Closed defect	Status
Issue: `swFCPortLinkState` is not in sync with `portdisable/portenable` on FOS4.4.x. Symptom: Pre-FOS 4.4.0, the status of SW-MIB::swFCPortLinkState changed according to portEnable and portDisable commands. In FOS 4.4.0x, unless the FC cable is connected to the switch, it always shows the port as disabled.	Fixed
Issue: When using FOS 4.4.x as a proxy to manage a future new platform with greater then 128 ports, any MS command (except Vendor Unique New Generation commands) may fail if the receiving data exceeds 3K limit. Symptom: When FOS 4.4.0x switch is used as proxy, API `GetObjectsByType` is returning an error code -221.	Fixed

Closed issues from Fabric OS 4.4.0e

Table 9 lists issues resolved with the release of Fabric OS version 4.4.0e.

Table 9 Fabric OS 4.4.0e closed issues summary

Closed defect	Status
Issue: Found memory leaks in Asynchronous Response Router (ARR) and Management Server Daemon (MSD).	Fixed
Issue: Fabric Watch no longer reports contribution ports for port fault marginal condition in FOS 4.4.0. Symptom: 005/03/29-18:16:33, [FW-1437], 157,, WARNING, brocade2, Switch status change contributing factor Faulty ports: 1 faulty ports.	Fixed
Issue: `fspfd` experiences ASSERT while processing Link State Update record (LSU) during fabric merge. Symptom: The fspfd experienced an ASSERT while processing the LSU. The fabric is in interop mode; the lsr is generated by domain 4; and domain 5 is connected to domain 4 through port 1. The `supportshow` contains the `fabricshow`, and domains 4 and 5 are not present.	Fixed
Issue: Switch reboot with Time Service Daemon (tsd) panic while setting hardware clock due to I2C contention with another process. Symptom: tsd panic in hardware clock set code. When contention occurs, the process blocked from I2C access could go beyond the time limit set by the software watchdog. The process is then killed by the software watchdog.	Fixed.

Table 9 Fabric OS 4.4.0e closed issues summary

Closed defect	Status
Issue: Both CPs reboot at same time after blade replacement. Symptom: During initialization on a Core Switch 2/64, a blade is faulted and sysctrl tries to shut down the blade. During this shutdown process, the object used to reference this blade has not been initialized causing the CP to ASSERT due to an invalid object	Fixed
Issue: Without Fabric Watch license, snmpd panic during mib walk. Symptom: run: snmpwalk -v3 -u snmpadmin1 10.64.148.56 .1.3.6.1.4.1.1588.2.1.1.1.10.1; There will be 19000 no fabric watch license printed, then snmpd panics.	Fixed
Issue: Memory corruption when management software sends fabric slot information request through msd, which causes a switch panic. Symptom: kSWD kill of msd, `portlogdump` has following entry earlier: msd msRemQ 255 f004 00fffc7b,00fffc2c,10000060,69805 fe1 <-- GSLOTD	Fixed
Issue: When there is a faulted blade in a chassis based switch, Fabric Manager shows the switch to be unreachable. Symptom: A switch is seen as "Unknown" in FM. Unable to fully manage switch through Fabric Manager.	Fixed

Table 9 Fabric OS 4.4.0e closed issues summary

Closed defect	Status
Issue: Zone daemon (zoned) occasionally panics during zone changes. Symptom: Switch panics with zoned when performing zoning changes and leaves behind a stack backtrace with `cfgBufGetEnableSig` as the top frame.	Fixed.
Issue: With a 3rd party switch, when receiving an empty data record, the zone daemon (zoned) panics in interopmode. Symptom: zoned assert in merge/zn_merge_dbg.c:452	Fixed.
Issue: Class3 frames could be dropped in session based zoning when a different port in the same zone goes off/on line. Symptom: Customer's 3rd party box reports frame drop error.	Fixed.
Issue: swFabricWatchTrap has #SUMMARY and #ARGUMENTS out of sync with OBJECTS order <H271> Solution: The new varbinding command `swEventSeverityLevel` was added in the varbind list but the argument list was not changed properly. Correct SNMP MIB to match the summary and argument list.	Fixed

Closed issues from Fabric OS 4.4.0f

Table 10 lists issues resolved with the release of Fabric OS version 4.4.0f.

Table 10 Fabric OS 4.4.0f closed issues summary

Closed defect	Status
Issue: When "Long Distance Fabric" parameter is configured on 1 Gb StorageWorks 8 and 16 switches to include a SAN Switch 4/32 in the fabric, ISL ports on the older switches get link timeouts. 1 Gb StorageWorks 8 and 16 switches running FOS 2.x must set the Long Distance Fabric parameter ON when connected to a SAN Switch 4/32. This results in a Continuous Link Timeout.	Workaround: Do not use Long Distance Fabric parameter. Use `portcfglongdistance` to set Long distance link on individual port.
Issue: DCC policy is not enforced properly after failover/reboot/fastboot. Symptom: DCC_POLICY is not enforced if only 1 CP is rebooted or fastbooted during either cold or warm recovery. Rebooting or fastbooting both CPs does not show any error.	Workaround: Issue a subsequent secpolicyactivate after the reboot/fastboot completes to reestablish the DCC policy.
Issue: When a disk drive on a loop is replaced, the Nameserver still shows the WWN of the old drive. Symptom: During JBOD drive replacement testing, the new drive WWN information is not listed in the switch name server table. The `portloginshow` command displays the correct WWN of the drive, but the old wwn shows up in the name server table.	Workaround: After swapping the device, `portdisable` and `portenable` will correct the `portwwn` in the NS database.
Issue: Switch does not pass traffic in interopmode with Window host if there is a zone change performed without a switch reboot. Symptom: FC trace showed FOS 4.4 switch rejecting a GPN_ID with the error port ID not in register.	Workaround: Switch reboot.

Table 10 Fabric OS 4.4.0f closed issues summary

Closed defect	Status
Issue: MSd panic while processing a bad frame sent by a remote switch that is out of memory. Symptom: FOS 4.4.x switch panics in msd when the remote switch has an out-of-memory or low-memory signature. The problem only happens if the remote switch is running a version of code older than FOS 4.4 and is also low on or out of memory.	Fixed.
Issue: Switch panic on FOS4.4.x with zoned assert on invalid interface identifier. Symptom: Zone panic with assert at merge/zn_merge_dbg.c:453, with call from `zoneDomain_portsIfId`.	Workaround: Disable F ports before upgrade.
Issue: SAN Director 4/256 panic (zoned ASSERT when trans_in_progress is detected) when multiple changes take place without Reliable Commit Service (RCS). Symptom: Zone daemon causes switch panic.	Workaround: Enable RCS, avoid multiple transactions initiated in parallel.